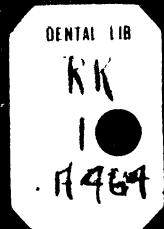
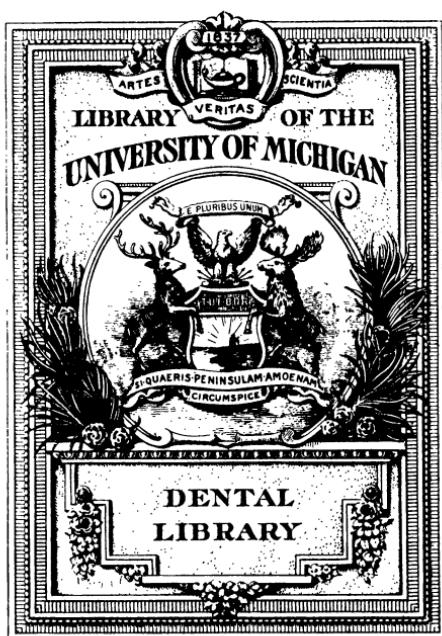
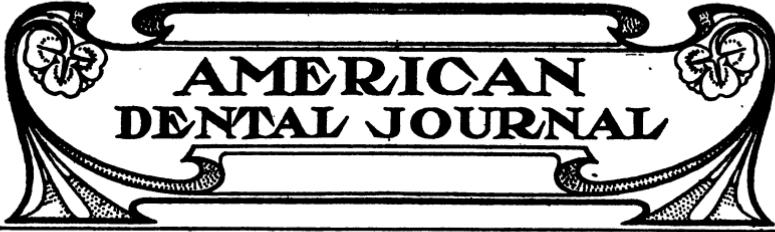


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Listerine Tooth Powder

Tooth powders have long been empirically employed, chiefly as a mechanical agent for cleansing the teeth, and with little regard to their composition or chemical action. Many of the articles sold for this purpose contain ingredients prone to fermentative action in the mouth, such as orris root, starch, sugar, etc., and, in addition, pumice stone, cuttlefish bone, or other harmfully abrasive substances.

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To dental practitioners of record, the manufacturers will be pleased to send a supply of samples of Listerine Tooth Powder for distribution to patients.

**Lambert Pharmacal Co.
Saint Louis**

OUR POST GRADUATE COURSE

OPERATIVE DENTISTRY.

BY R. B. TULLER, D. D. S.

DISCUSSING INCIDENTS OF OFFICE PRACTICE.

Not long ago I had a patient who had had the six superior anterior teeth fill across the labial surfaces, on account of V-shaped erosion which had cut across each one. In my estimation, the work was not very carefully done, though I was assured it was done by a Chicago dentist of good standing, and one who gets good prices.

The fillings seemed very firm in place, but were badly flaked, and consequently rough and uneven.

The patient had ample means to employ the best talent. Years ago he had been a patient of Dr. Allport; but the latter had nothing to do with these fillings. Perhaps there was no occasion in his day to remedy this erosion by filling as it may not have begun so early.

Now, the conditions I found, whether due to leaky fillings or not, was a continuation of the erosion on the lower side, about the same as would have occurred, likely, had no fillings been placed; that is, a channel of uniform width had formed, holding to the same bevel of the original V-shape to all appearance, so that I had a channel running in at an angle with the gold on the upper side and smooth enamel wall below. The channel was about the thirty-second of an inch in width.

I do not remember ever to have noted recurring erosion like this before, but have found it frequently where it had begun a new V-shaped groove close to the filling. The question arose in my mind as to whether the fillings, not being carefully made, and hence leaky, had not permitted erosion to continue unmolested. The fillings, as I said, were well anchored, but just how I do not know. There was no evidence of decay; but I could feel and see the smooth sloping wall under the shelf of gold.

For reasons, which were discussed with the patient, I concluded to patch up the fillings for the present, though it meant additional

display of gold. I therefore cleaned out the channels with burs, more to clear them of debris than anything else; washed them out with chloroform to remove any greasy substance, antisepticised and then used oxy-phosphate cement mainly, and surfacing with crystal gold. I used the crystal gold mainly to patch up some of the old gold fillings along that edge which had become rough and ragged. In that way, in finishing up, I was enabled to make a decidedly improved appearance of the conditions altogether.

Now, the reason for repeating a filling operation to remedy (maybe) the erosion, was this: I did not feel quite justified in cutting off the teeth at the necks and adapting porcelain crowns, a procedure I assured my patient that would eventually be necessary—the only real remedy, perhaps, that anyone knows. I have in the past several years filled such cavities with Ascher's enamel; but I do not know how that is going to act as a barrier to the erosion, as I have not had time or opportunity to observe as regards this particular matter. I am inclined to believe something in the nature of a cement filling, or the silicate enamel would be a better filling for lesions of the enamel made by erosion than a metallic filling, though I presume the substance, or whatever it is that erodes enamel, might do the same to any cement filling. But if it would protect the tooth for a little while, it might be frequently renewed.

Erosion is most frequently seen on the exposed surfaces of teeth, very often across incisors, as were these I have referred to, and gold, of course, is unsightly.

I have filled a number of cavities of erosion with porcelain inlays, and I don't know of anything better to do where the expense can be afforded, and while the porcelain protects the cement and is not itself attacked by the erosion, like all other attempts to fill, it does not prevent an attack in due time outside the margins. Ultimately, more than likely, unless some new remedy is found, the tooth, as a last resort, will have to be excised and crowned.

* * *

A number of years ago I was treating an abscessed upper bicuspid for a patient. It had a fistulous opening and I was able to pump medicaments through. Two or three times all disturbance ceased, and the tooth seemed all right with a dressing in root and a temporary filling; but whenever a root filling was put in, it soon got

sore and troublesome and the root filling had to be removed, and treatment undertaken again.

On one of these occasions after removing the root filling, I found the sinus had become clogged and medicines would not go through. I have learned by experience to be cautious about using dioxogen or peroxide of hydrogen too freely; but yet in a number of instances it has been of great help in getting a sinus open. I therefore used a little in this case. I got a slight show of it at the opening, but not satisfactory. I therefore filled a little bulb syringe and began to use increasing pressure on the bulb. Suddenly there was a yielding, and that instant my patient had his feet up in the air; while from both nostrils, but more from the side I was operating, came a volcano of foam laden with pus and debris. It came in such volume and with such force, while my patient was trying to get his breath and splurging around, that I was frightened.

And well I might have been. It was a dangerous thing, something like touching off powder. Fortunately for me and my patient, the trouble and spasm was soon over and he could talk. He exclaimed: "Gee, Doctor, you hit the spot that time. It went up through my head and out into my nose." He told it about right. He expressed himself as greatly relieved of something that had annoyed him for a year or two, and was quite pleased.

As for me, I got a shock that I never got over, and a warning not to fool much with dynamite—or things almost as bad under certain conditions. From a history of the case and symptoms as expressed by my patient I had not suspected any antral trouble; but after the explosion the patient told me what I had not drawn out before, because the patient did not connect it with the tooth, that he had had a good deal of trouble and distress in the antral region for some time. Had I known that, I would have used no peroxide of hydrogen as I did. What happened was that a sinus out through the gum became clogged, and my whole charge of peroxide of hydrogen went up into an opening into the antrum, filled, no doubt, with pus. If the opening into the nasal tract had been swollen and closed, or even partially so, something very serious might have happened—probably would have happened to my patient. As it happened, luckily, there was an escape so free that no serious pain was caused and every-

thing was carried off, and the patient, though almost strangulated at first, felt a wonderful relief.

I followed treatment through the antrum for a few days by way of the tooth (no special opening—no loss of tooth) and then filled the roots of the tooth with an antiseptic paste and a cement filling in cavity, and everything healed up perfectly satisfactory, and after due time a permanent filling was put in.

I want to emphasize (though this experience should do so sufficiently) that while it would be difficult for most of us to get along without dioxogen or some other form of peroxide of hydrogen, there is danger in its use in a good many places. It should never be injected into blind abscesses, nor into any place where it has no wide and free escape. My patient, a German, said: "Doctor, I thought a keg of beer had burst in my head. Plenty of it went into my stomach; it came too fast and pressing." I wish some one who has the facilities to do it, would try to measure the extent of the pressure it may attain under certain possible circumstances. I hate to think what might have happened if that antrum had been closed tight except the minute opening from the tooth. I think a force might be generated sufficient to fracture the bones. Peroxide is little used now-a-days for treatment of dental abscessed conditions, where the confinement is but little even; for it is feared that it has a tendency to force poison and germs farther into the wound.

NATIONAL ASSOCIATION PAMPHLET.

The pamphlet on the mouth and the teeth, compiled by the National Association, is a move in this direction that is likely to prove an effective one, provided it is given the hearty support of the dentists of the country. I would respectfully urge the members of this society, and all dentists in our state, to secure a quantity of these folders and distribute them to the people. They furnish a means of education to the public that is authoritative and free from any taint of personal advertisement. Articles have appeared on dental subjects in a number of the leading magazines and public prints in the last few years that have done incalculable good. They have been timely and well written. The information given was correct, and presented in an attractive, interesting, and understandable form.—*J. H. McBride, Western Dental Journal.*

BACTERIOLOGY AND PATHOLOGY.

BY GEO. W. COOK, B. S., D. D. S., CHICAGO, ILL.

DEAN OF DENTAL DEPARTMENT, UNIVERSITY OF ILLINOIS; PROFESSOR OF BACTERIOLOGY, UNIVERSITY OF ILLINOIS.

Q. WHAT IS THE OPTIMUM TEMPERATURE OF BACTERIA?

A. The optimum temperature is the temperature at which bacteria can produce the most luxuriant growth.

Q. DOES ALL BACTERIA HAVE THE SAME TEMPERATURE AS THEIR OPTIMUM TEMPERATURE?

A. No. There is a variation among bacteria at which they grow the most luxuriantly. The minimum temperature for some bacteria is very much greater than that of others; for instance, the bacillus of phosphorescence grows best at a temperature of 20 C., while the hay bacillus grows best at 30 C. The bacillus of tuberculosis grows best at 38 C., while the bacillus thermophilus grows best at 63 to 70 C.

Q. AT WHAT TEMPERATURE WILL BACTERIA GROW BEST AND REPRODUCE THEIR SPECIE?

A. Naturally they will grow and reproduce their kind at the most suitable temperature for that particular kind of bacteria. It might be said that some bacteria are able to multiply at almost freezing point, while others may have to have a temperature ranging from 37 C. to 75 C.

Q. WHAT BACTERIA LIVE BEST AT THE TEMPERATURE OF THE HUMAN BODY?

A. Those bacteria that have become habituated to live on or within the body of warm-blooded animals grow best at the temperature of the body of these animals, which is usually about 37 C.

Q. WHAT BACTERIA ARE THE MOST EASILY CHANGED BY THE VARIATION OF TEMPERATURE?

A. Those bacteria that live in or on the body of animals, especially that of man, have a very much less range of variation than those that live on the outside world.

Q. WHAT BACTERIA WILL LIVE BEST AT BODY TEMPERATURE OF MAN?

A. Those bacteria that produce disease in man live best at the body temperature of man and cannot stand the changes of tempera-

ture from that of the body without being more or less affected by the change of temperature.

Q. WHAT ARE SPORES?

A. Spores are sometimes designated as the resting stage of bacteria or a condition that the cell passes into, which is very much like the state the higher forms of vegetable life pass into in which the seeds are formed.

Q. DESCRIBE A BACTERIAL SPORE?

A. A bacterial spore is spherical or oval; as a rule they have a higher resistance of the bacteria to all injurious influences. They stain with greater difficulty.

Q. WILL ONE BACTERIA HAVE MORE THAN ONE SPORE?

A. As a rule, they do not; but there are some variations to this rule.

Q. WHAT IS UNDERSTOOD BY THE VEGETATIVE STAGE OF BACTERIA?

A. It is that stage into which bacteria are constantly developing in which they are reproducing themselves in a rapid way.

Q. HOW DO BACTERIA REPRODUCE THEMSELVES?

A. The process of development is by the cell dividing in equal halves, in some respects resembling that of the higher forms of tissue cell development.

Q. WHAT IS UNDERSTOOD BY FISSION?

A. It is a process whereby the cells divide in equal halves by a distinct line forming across the body of the cell. This distinct line across the cell is formed and rapidly changes to make the cell look constricted, when in a few moments this line will show a distinct separation into two cells.

Q. HOW DOES THIS PROCESS OF DEVELOPMENT DIFFER FROM THAT OF SPORE FORMATION?

A. Spores are formed during the process of development of a colony and pass into what might be termed the inactive stage of bacteria and remain in that state for almost an indefinite period, while the fission process or the division of the cell goes on in rapid succession.

Q. IN WHAT WAY DOES THE VEGETATIVE STAGE OF BACTERIA DIFFER FROM THE SPORE?

A. The vegetative stage is the active growing stage of bacteria, while the spore stage is inactive in comparison with that of the vegetative stage.

Q. WHAT IS UNDERSTOOD BY THE TERM MOTILITY OF BACTERIA?

A. It means the power that some bacteria possess of moving themselves through liquid substance.

Q. WHAT ARE SOME OF THE MEANS THAT BACTERIA HAVE TO PROPEL THEMSELVES THROUGH LIQUID SUBSTANCE?

A. There are protoplasmic prolongations extending from the outside of the cell wall and the bacterial cell wall has sufficient control of these prolongations to move them in fluid in such a manner as to make them able to propel themselves through the fluid. These prolongations are called flagella and are called the organs of locomotion of bacteria. They vary in number and length according to the particular specie.

Q. WHAT IS A PROTOZOA?

A. A protozoa is a unicellular organism belonging to the animal kingdom.

Q. WHAT IS A PARASITE?

A. A parasite is a living organism that may obtain its existence off another living organism.

Q. WHAT WOULD BE THE NATURAL HABITAT OF A STRICTLY PARASITIC FORM OF LIFE?

A. The natural habitat of a parasite would be that of a living organism that would get all of the essential nutrition of life and be able to grow and reproduce itself in a normal way while living on another organism.

Q. ARE THERE ANY PROTOZOA FORMS OF LIFE THAT CAN LIVE AS A PARASITE?

A. There are a number that are capable of living on other forms of life and performing all the essential functions of life.

Q. GIVE AN EXAMPLE OF A PROTOZOA THAT LIVES AS A PARASITE.

A. The plasmodia of malaria lives in the mosquito and is easily transferred from the mosquito to that of man. The amoeba coli is another example of an animal parasite living in the intestinal tract of man.

Q. GIVE AN EXAMPLE OF A BACTERIAL PARASITE.

A. The coli bacillus is a bacterium that is pretty constantly found in the intestinal tract of man. There are also a large number of bacteria that inhabit the oral cavity of man as parasites only.

Q. AS A RULE, WHAT EFFECT DOES A PARASITE HAVE ON ITS HOST?

A. It either acts as a mechanical irritant or disturbs some of the physiological functions of the host, either by extracting some of the vital substance out of his body or leaving within the body some of the products of the bacterial cell, or chemically change some of the food that is taken into the animal cell in such a way that it cannot be used as an agent for supplying the waste products of the body.

Q. WHAT TERM IS APPLIED TO CERTAIN BACTERIA THAT INHABIT THE TISSUES AND FLUIDS OF THE HIGHER FORMS OF ANIMAL LIFE?

A. The term that is applied to a certain class of bacteria that make their way into the tissues and fluids of the body and there produce abnormal changes are designated as pathogenic bacteria.

Q. WHAT PHYSIOLOGICAL PECULIARITY DOES BACTERIA POSSESS THAT SEEKS TO EXIST IN NO OTHER FORM OF LIFE?

A. They have the peculiarity of living in the absence of the free oxygen of the air.

Q. WHAT TERM IS APPLIED TO THE BACTERIA THAT HAVE THE PECULIAR CHARACTERISTIC OF LIVING WITHOUT THE OXYGEN OF THE AIR?

A. They are known as anaerobic bacteria.

Q. IS IT POSSIBLE TO HAVE LIFE WITHOUT OXYGEN?

A. No. All living substance that has activities of any description must have oxygen; therefore there are two classes of bacteria—anaerobic and aerobic.

Q. FROM WHAT SOURCE CAN ANAEROBIC BACTERIA OBTAIN THEIR OXYGEN WHEN CONFINED IN THE TISSUES OF THE BODY?

A. They obtain their oxygen by decomposing the molecular structure of the tissues and the fluids and extract their oxygen from the tissues and fluids of the body.

Q. WHAT INTEREST DOES ANAEROBIC BACTERIA POSSESS IN THE BIOLOGICAL WORLD?

A. The important phenomena that they possess is that they can break up complex compounds, such as proteids and carbohydrates, and chemically change them, producing all kinds of chemical reactions that would be absolutely unknown to the world if it were not for the peculiarity of these organisms.

Q. CAN ALL ANAEROBIC BACTERIA ONLY LIVE IN THE ABSENCE OF THE FREE OXYGEN OF THE AIR?

A. No. There are some of these anaerobic bacteria that are capable of living an aerobic life. There are also some of the aerobic bacteria capable of performing the function of physically changing some compounds in the absence of the free oxygen of the air; so we have a facultative aerobic bacteria and a facultative anaerobic bacteria.

Q. WHAT PART DOES BACTERIA PLAY IN THE DECOMPOSITION OF NITROGENOUS SUBSTANCE (PROTEIDS)?

A. The term putrefaction has been applied to a process that actively takes place after the physiological function of living substance ceases.

Q. HOW DO YOU KNOW THAT SUCH CHANGES ARE GOING ON IN DEAD ORGANIC SUBSTANCE?

A. Because of certain chemical compounds found to be present in decomposing substance that do not exist under ordinary circumstances.

Q. NAME SOME OF THE COMPOUNDS THAT ARE FOUND IN DECAYING MATERIAL OF A PROTEID NATURE.

A. Ammonia, carbon dioxide, hydrogen, sulphuretted hydrogen and nitrogen are some of the common gases found in decaying material of a proteid nature.

Q. WHAT ARE SOME OF THE MORE STABLE BODIES FORMED AS A PRODUCT IN THE DECOMPOSITION OF PROTEIDS?

A. There is a large number of volatile-like compounds that are frequently referred to as the aromatic bodies, also the amino acids and peptones.

Q. WHAT DIGESTIVE PROCESS IN THE BODY RESEMBLES THAT OF PUTREFACTION OF PROTEIDS BY BACTERIA?

A. Proteids undergo practically the same cleavage process by bacterial action that takes place in tryptic digestion. In the beginning of putrefaction proteids are broken up into albuminose and peptones. These are then broken up into the amino acids.

Q. WHAT EFFECT DOES BACTERIA HAVE ON THE AMINO ACIDS?

A. The amino acids are valuable nutritive substance for bacteria. The amino acids are easily affected by the action of bacteria.

Q. IN WHAT WAY IS AMINO ACID AFFECTED BY THE ACTION OF BACTERIA? GIVE SOME OF THE PRODUCTS FORMED IN THE CHEMICAL CHANGE.

A. Ammonia is given off and by a splitting process carbon dioxides are formed. During this splitting process cadaverin and putrescin are the two important ptomaines that are formed.

P. WILL THESE PTOMAINS BE FURTHER BROKEN UP BY THE ACTION OF BACTERIA?

A. They will be further decomposed and in some particular specie of bacteria indol is the substance that is formed and readily gives the characteristic color, which belongs to a certain class of the chromogenic bacteria.

Q. WHAT IS A CHROMOGENIC BACTERIA?

A. A chromogenic bacterium is a bacterial cell that is capable of changing its environments or food media in such a way as to chemically give a color to its surrounding substance. Many times this coloring matter is of such importance as to be recognized as a brilliant hue.

Q. IS THIS COLORING MATTER OR PIGMENTATION IN THE BACTERIAL CELL?

A. Some of this pigment material occurs in solution and others form granules suspended in the solution of nutrient material.

Q. NAME SOME OF THE MOST COMMON FORMS OF BACTERIA THAT PRODUCE PIGMENTATION.

A. B. violaceus, B. janthinus, B. cyanogenes, B. pyocyaneus, B. fluorescent, staphylococcus, aureus, sarcina letea, sarcina aurantiaca, and the B. of prodigiosus.

Q. WILL THE FOOD MEDIA HAVE ANY INFLUENCE ON THE FORMATION OF PIGMENTATION?

A. The food material has a decided influence on the formation of pigments, and it is sometimes observed that bacteria on the ordinary bacterial culture media the formation of pigment seems to be quite impossible.

Q. WILL THE TEMPERATURE HAVE ANY INFLUENCE ON THE CHROMOGENIC PROCESSES OF BACTERIA?

A. Temperature has a great influence in the pigment forming powers of bacteria; for instance, the bacillus prodigiosus forms the red coloring matter best at a temperature of 37° C.

Q. WHAT INFLUENCE DOES ANAEROBIOSIS OR AEROBIC CONDITIONS HAVE ON PIGMENTATION?

A. The pigmentation is rarely produced in the absence of the free oxygen of the air, although there are some exceptions. The spirillum rubrum has been found to form only its red pigmentation when grown in the absence of the free oxygen of the air.

Q. WHAT INFLUENCE WILL CERTAIN CHEMICAL AGENTS OR COMPOUNDS HAVE ON THE PRODUCTION OF PIGMENTATION?

A. Phosphates and sulphates must be present in large abundance for the bacillus pyocyanus to produce its green pigment. Sodium tartrate also has an important influence on the pigmentation of the bacillus prodigiosus. Carbohydrate substances also have a decided influence on pigmentation. A nutrient media containing large quantities of the starch of potatoes, rice and wheat plays an important role in the chromogenesis of a large number of bacteria.

Q. ARE ALL OF THE PIGMENTS OF BACTERIAL ORIGIN SOLUBLE IN WATER?

A. Many of the red and yellow pigments are insoluble in water, but soluble in alcohol, ether and chloroform, while the fluorescent pigments are soluble in water, but are not soluble in either ether or alcohol.

Q. WHAT CHEMICAL PECULIARITY DOES BACTERIAL PIGMENT HAVE?

A. Bacterial pigmentation seems to belong to a group of fatty pigment that is found abundantly in both the animal and vegetable kingdoms, called lipochromes.

Our Foreign Department

THOMAS L. LARSENNEUR, D. D. S., Foreign Department Editor

A METHOD OF SWAGING RUBBER PLATES.

BY EMILE LINET.

(*Revue Internationale de Prothèse Dentaire*, Paris.)

The method of swaging rubber plates as advocated by Dr. Linet is not only very practical, but affords the construction of a well fitting plate of uniform thickness, whose palatal side faithfully reproduces the rugae. Generally the use of rubber offers two great disadvantages:

(1) It irritates the mucous membrane and sometimes causes abscess. This is due to its poor conductivity of heat and to the usually excessive thickness of the base-plate.

(2) The massive construction and the difficulty in obtaining a uniform thickness often involves loss of taste and impediment in speech.

To do away with the excessive thickness and the want of natural forms, the author does not model and smooth his plate on the lingual surface, but stamps it like a metal plate. After securing a model as for a gold plate the following procedure is adopted:

(1) From the plaster model a zinc die and counter-die in lead are made.

(2) With tin foil of the thickness used in making the patterns from which metal plates are cut, a base-plate is made on the zinc model which takes the place of the wax in ordinary appliance. This base-plate is obtained by burnishing several tinfoil sheets over the zinc.

(3) After a layer of five or six sheets has been obtained, the plate is lightly swaged with the counter-die, after placing a piece of fine linen between in order to avoid sticking.

(4) After the plate thus obtained has been trimmed, it is again swaged as before, only made strongly. It is then adjusted to the plaster model, and the rest of the appliance is constructed like

an ordinary rubber plate. The packing of the plaster model requires great care, and the counter-die must flow in perfectly, in order to reproduce on the rubber all the details of the plate. After the plaster has hardened, the wax is melted and the tinfoil carefully removed. The rubber is packed in the usual manner and the die is tightly closed, in order to avoid any uneven thickness.

The rubber plate is vulcanized by gradually raising the heat and keeping it at an even temperature of 160° C for one and a half hours. If in polishing, the exact form of the tinfoil is preserved, the plate will surpass a metal plate. The disagreeable sensation of heat is done away with by this rubber plate with a metallic base, the food particles do not stick as firmly as they would to a rubber plate, and the elasticity of the latter, which is one of its advantages over a metal plate, is preserved.

CRESYL FORMOTHYMOL IN THE TREATMENT OF CARIES OF THE THIRD AND FOURTH DEGREE

BY DR. V. E. MIEGEVILLE, CHIEF OF THE CLINIC AND PHARMACIST AT
THE PARIS DENTAL SCHOOL.

(*L'Odontologie*, Paris, Feb. 15, 1909.)

Among the numerous products which are utilized in the treatment of carious teeth of the fourth degree those which have Formol as their base certainly give the best results.

The commercial solution of formic aldehyde 40 per cent strength is extremely antiseptic, more so than corrosive sublimate, according to M. Trillat; in all cases it is admitted that 25 centigrammes, that is to say about 5 drops of a 40 per cent solution of the commercial drug, suffice to sterilize a litre of culture broth crowded with microbes, even if pathological ones. In the gaseous state it is the most energetic of known antiseptic agents; its vapor acts in the surest and most rapid manner, killing the most resisting pathological microbes with their spores. In order for this sterilization to be efficacious it is necessary for the formol or its vapor should be in direct contact with every part of the object to be disinfected.

Since in dental practice one cannot employ it in the gaseous state (there is certainly the aspiratory method proposed last year by

one of our colleagues, but I must be very careful lest I be understood to regard it as practicable), it is necessary to employ it in solution, at the same time exercising a rational choice among those available. Practically the formol of commerce, which is a 40 per cent aqueous solution of formic aldehyde presents serious inconveniences, which for the treatment of caries condemn it; it is its want of diffusibility due to its slight volatility.

It is well known that if an aqueous solution of formol be carried to the boiling point, it volatilizes slightly, the aqueous vapor chiefly distils, carrying off with difficulty (*à peine*) the formic aldehyde, which, when the point of concentration exceeds 50 per cent, remains at the bottom of the retort, and becoming thicker little by little, gives rise by condensation to a complex compound body, solid and insoluble, composed in great part of trioxymethylene.

It was originally proposed to add in the presence of alcohol essence of geranium, thinking that an essence would make the formol diffuse more readily in the dental tissues, and likewise attenuate its irritant properties, but this addition of an essence sufficiently feebly antiseptic diminished the concentration, and consequently the microbicidal power of the product, while communicating to it an odor disagreeable for the mouth.

One has then, in order to obtain a slight amount of diffusibility, reduced the antiseptic power of formol by essence of geranium; if one must make an addition to the formic aldehyde, in order to permit it to diffuse, it is necessary to at least add a product possessing real antiseptic power, above all having a solution absolutely anhydrom. Likewise, if the end in view was to attenuate the irritative property of the formol, it was necessary, therefore, to add to it a product possessing analgesic properties, the addition of which does not sensibly diminish its bactericidal power.

It is after taking into account all these considerations that I made trial of essence of thyme containing 50 per cent of thymol, a product strongly antiseptic, of which, according to M. Miguel, 2 grammes suffice to sterilize one litre of culture broth crammed with bacteria; ten times less toxic than phenol, to which it offers a complete analogy, it arrests putrid fermentation, and leaves the organic tissues unaltered.

Thymol by itself has already been employed by some practi-

tioners for the treatment of infected canals; besides this, it was a product with an odor agreeable to the mouth, which entered into the composition of numerous dentifrices.

Finally, after asepsis it was necessary to secure the greatest possible diffusibility by having a product which had great affinity for water; it was also absolutely indicated to utilize, as a dehydrant, chemically pure methylic alcohol, which, distilling at 65.5° C, is more soludile than ethylic alcohol which only distills at 78.4° C. One can then obtain, by means of special laboratory apparatus, a real saturation, by nascent formic aldehyde, cooled by the essence of thyme; the action of this product, already very antiseptic, can be reinforced by the addition of trikresol.

The method of operating is somewhat complicated, and necessitates great care; it is also advisable to prepare only small quantities at a time. A flask half filled with methylic alcohol is heated in a water bath (*bain-marie*), the alcohol evaporates, and, mixed with plenty of air, passes along a copper tube which contains coke heated to redness, without ever being carried to the point of incandescence, in order to avoid the production of carbonic acid. Formic aldehyde vapor mixed with that of methylic alcohol undecomposed passes off to become condensed in a U tube of large caliber filled one-fourth full of essence of thyme of known strength. The tube is submerged in a receiver full of water, which is kept at a sufficiently low temperature by means of pieces of ice in summer time, or simply running water in winter. The operation is stopped when the volume is augmented by 50 per cent, at this moment the U tube can be replaced by a new one. A small measuring-bottle (*flacon de contrôle*) completes the apparatus.

The essence of thyme saturates itself with formic aldehyde mixed with alcohol methylic. I then add to the product obtained 20 per cent trikresol, which is a mixture of the three cresols roughly in the proportion of 25 paracresol, 35 orthocresol, and 40 metacresol. The idea of adding this last product is to considerably augment the antiseptic power of the constituents, chiefly by preserving their properties. The product thus obtained is absolutely anhydrous, unalterable, very limpid, and possesses considerable microbicidal power; its constitution is crysol-formo-thymol—that is to say, it is composed of trikresol, formol and thymol.

All these researches have been made specially for the benefit of dental practice, and, after numerous practical experiments extending over five years, I am able to say that the cresyl-formo-thymol has rendered me excellent service in numerous cases.

It is employed upon twist-drills for cases of the fourth degree, even the most highly infected, after mechanical cleaning, washing and complete drying of the cavity. Its use can also be extended with advantage to the making of an antiseptic paste for use under a permanent stopping, either in filling canals in cases of the fourth degree and in total pulpectomies.

The following formula for this paste gives good results, and replaces advantageously iodoform paste, of which the odor is so disagreeable both for the dentist and patient alike:

Formo-thymol, 1 to 4 drops.

Oxide of zinc.

âä q. s. to make a firm paste.

Eugenol.

In pulpal amputations, the following is my method of operating: After an application of arsenic, cocaine pressure anaesthesia or an injection of novocaine into the gums, I clear the pulpal chamber of its contents, and after washing it out with tepid boiled water, followed by alcohol and chloroform, I dry it and insert cotton-wool soaked in cresyl-formo-thymol, which I leave twenty-four hours under gutta percha. At the next sitting I remove all this dressing, dry again, and fill the pulp chamber with the above mentioned paste. I cover this with cement, and after waiting from eight to ten days to see how the case goes on, I insert a permanent filling. In operating in this way with care, I have always good results.

In ordinary cases of the fourth degree, one or two dressings generally suffice to obtain a cure, three or four for stubborn and complicated cases.

Briefly, cresyl-formo-thymol, notwithstanding its antiseptic power and its great diffusibility, does not cause alveolo-dental inflammation; it rapidly permeates into the root-canals, impregnates the dry dentine and renders it sterile, at the same time speedily destroying the infective agents which have been able to find a home in it.

ORIGINAL CONTRIBUTIONS

TOOTHSOME TOPICS.

BY R. B. TULLER.

They is no uste of talkin', my pa is a grate ingeenious.

Now, what do you gess he's went an' dun?

He got all wrukt up 'bout this flyin' machine bizness, an' he's jest gone an' made up one of his own.

Ma sez he otter succeed, fur he's allus bin up in th' air, more or less.

But pa hain't follerin' no president in his aer ship, 'cause he's a ingeenious an' has got orignul idees of his own.

What pa dun was to think over what the other fellers wus a-doin' an' akt different—in sum respeckts.

Pa sez a man is hevy a-nuff hisself widout takin' a lot more heft up what ain't kneeded; an' so pa sed to his self, "Cut out all the heft you can, an' use some gas, not to carry you up to the moon, but just to help overcum gravity; then fly like you'd swim."

Ma sed, "Joel, that part ought to be eezy fur you. You hav got plenty of gas, so fur's that goes, but then, of course, you've gotter have some branes, too—but not the same kind you used to bild and boom Bunkumhurst on Deepwater."

Pa kind of shivels sum when ma goes at him karsasstically; but he jest looks, and throws his cud of tobacco into the other cheek an' usually most allus goes rite on and minds his own bizness, an' don't say nothin' back. 'Tain't no uste enny way, 'cause ma has to allus have the last inning an her karsasm keeps gittin' more penknifetrating all the time.

But ma has a kind hart after all; an' when pa gits kind of sore sometimes, and holdin' off, she jest kind of laffs an' sez, "Joel, you dum ole fool, come on to yer supper. Don't cut off yer grub to spite yer stummick; cause you'll make up fer it at breckfus an' they ain't nothin' saved."

Ma sez it is all rite to try to do sumpin' in the world; but *sez pa* is selfish in this, 'cause he's figerrin' on flyin' all alone and not takin' his fambly along. "But," she sez, "it is all rite to try it out alone now, and not brake all the fambly's necks to onct."

Do you know what pa's aeromobile is like? When he gits ready all he has to do when he wants to ride and go some wher, is to put on his aerocoat, which is hump-backed with the gas in it to overcome gravity; spread his sleves, which air wings, stick his feet into his air treaders and hop up in the aer an' kick his feet and flap his wings an' go.

He hain't gone far yit; but he *sez* that's the way with 'em all at first. The moter barings git hot, or the crank shafts gets bent, or one of the propeller wings gits out of true, or the gasolene plays out; an' so he won't expect to do marvelous stunts until after menny trials and failures. All of which are advertisin' jest the same, he *sez*.

Pa found city gas, which he put in a bag in the hump in his coat, was not quite strong a nuff to lift him without too much hard work with his wings an' feet (an' ma tolle him he otter have plenty of air cushion' under his coat tails, as it might happen he'd have to set down reel hard on the ground). So now pa's experimentin' on makin' a gas with more lift to it in smaller bulk, and plenty of push at the rite moment.

He's got the rite idee, but as he sed, it wouldn't work without failures. Pa's been thinkin' about the wonderful power of gasolene gas, when a spark makes it expand in large quantities with lots of lift and push; so he tried that. He fixt a little supply flask of gasoline in the back of his coat, opening into his gas hump, with a little valve and a sparker. The idee is, at the moment he's ready to ascend he jumps, wich ottermatically lets some gas in the bag an' sparks it.

It worked all O. K. in sendin' pa up with a bang; but it didn't seem to keep him up, and his wings workt wobbly, and the result was that he shot hisself over accrost the alley into a back yard where they had a big dog, and where he came down like a mud turkle a tryin' to fly, and with his gas bag all busted and ruined and his angel coat, as ma calls it, all torn an' scorched, some of which that big feerocious dog was responsible for. An' I guess if that dog hadn't been scared of a hull lot of things—flame, smoke, wings, air treaders on pa's feet—he wood hav made bad work of pa, which was bad anaff

at it wus, tho pa wus fortunit a nuff to land on a couple of clothes lines, which broke his fall *sum*; but which broke the line and pulled over the posts on which it wus hicht, an' Mrs. Uppish, who lives there, made a holler wurst than ma ever made, an' after Mr. Uppish pulled off the dog, she swatted pa's head with the old back porch broom, until the man cried, "There, that's a nuff, Gwendolin. Let the — fool go. He's got his'n all rite 'thout enny more of that."

Well, pa was in a purdickamunt. He couldn't get on his feet on account of the air treaders, and his wings wus no account to do anything but flutter an' flop; and ma an' I had to go over an' unharness him 'fore he could git up.

Mr. Uppish hadn't before recognized pa, but now he sed: "Why, Doc Bunkum, what in Kalamazoo are you tryin' to do—play eegle or turky-buzzard? It'll cost you forty cents fer that close line, an' four dollars to replace them broken posts. Gosh! it's a wonder you air alive to make good. What kind of a fool harness have you got into enny way? Well, I'll be jiggered!"

Mrs. Uppish, she wuz too much flabbergasted, she sed, to adder-quately express her feelings, only she sed ma wuz a sante to live with such a freek, an' she'd expect a new broom for the old one she busted over his head, an' the money to do over the washin'.

Pa retired meek as Moses, an' ma an' I trailed after. Ma sed, "Joel, don't let this discourage you from tryin' to be an angel; but don't try too fly away too far, 'cause little Joel an' I need bred an' butter every day. I think, however, you can do beter kickin' your dental engine than tryin' to kick the air with your air treaders. Where'd the dog bite you, Joel? We'll have to kauterize that with a hot irn."

An' all pa sed was: "Will you *please* shut off your phonnygraft? Yer record is scrachy an' disagreeable, an' I've had 'bout a nuff fer onct."

But pa's still a wurkin' on flyin', an' sez we'll be proud of him some day when he have win fame and grate welth.

ABSTRACTS AND SELECTIONS.

THE RELATION BETWEEN DEVIATION OF THE NASAL SEPTUM AND IRREGULARITIES OF THE TEETH AND JAW.

FROM A RHINOLOGIST'S STANDPOINT.

NELSON M. BLACK, M. D., MILWAUKEE.

My attention was first directed, in 1899, to the relationship between deflected nasal septums and jaw irregularities by the remarkable effect produced in a patient thirty-three years of age, who presented a very badly deflectd septum with a high vault and laterally contracted V-shaped upper maxilla. The application of a regulating apparatus to bring about proper occlusion of the teeth to secure better mastication of food resulted in the marked relief of the nasal stenosis in regard to which she consulted me.

This led to investigation as to the etiologic factors in the production of deformed nasal septums, with the result of fully convincing me that not only are dental and jaw irregularities a decided factor in the production of deflected septa, but that the complete relief without possibility of return of this distressing condition, when found in conjunction with dental deformities, can be brought about only by first correcting the deformity existing in the superior maxilla.

The etiologic factors producing septal deflection and dental and jaw irregularities are compared in the following tables:

ETIOLOGY OF SEPTAL DEFLECTIONS.

Predisposing Factors.

Heredity.

Racial characteristics.

Admixture of racial types.

Some defects in primary laws of organization.

Diathetic or constitutional disorders: Rachitic; syphilitic; tubercular.

Traumatism: In utero; during delivery; during early childhood.

Inflammatory processes in nose, weakening structure.

Local and general malnutrition.
Infectious diseases.
Disease of the teeth.
Degeneracy.

Actual Factors.

Malocclusion.
Traumatism: In utero; during delivery, during early childhood; at any period of life.
Local and general malnutrition.
Mouth breathing.

Developmental Factors.

Unequal development of the vomer.
Underdevelopment of the superior maxillæ.
Overdevelopment of superior maxillæ.
Non-development of septum from disuse.

Force Directly Applied.

Foreign bodies.
Nasal growths.
Hypertrophic rhinitis.

Developmental Factors.

Overdevelopment of maxillæ.
Arrest of development of maxillæ.
Neuroses of development of the maxillæ.

Force Indirectly Applied.

Perverted muscular action.
Mastication.
Cheek and lip pressure.
Atmospheric pressure.

ETIOLOGY OF DENTAL AND JAW IRREGULARITIES.*Predisposing Factors.*

Heredity.
Racial characteristics.
Admixture of racial types.
Some defects in primary laws of organization.
Diathetic or constitutional disorders: Rachitic; syphilitis; tubercular.

Eruptive or infectious diseases.

Local and general malnutrition.

Mouth breathing.

Disuse.

Habits: Thumb sucking; biting lower lip; resting tongue between upper and lower lip.

Degeneracy.

Preverted cell action.

Actual Factors.

Malocclusion.

Premature loss of deciduous teeth.

Prolonged retention of deciduous teeth.

Loss of permanent teeth.

Tardy eruption of permanent teeth.

Supernumerary teeth.

Abnormal frenum labium.

Mouth breathing.

Force Directly Applied.

Perverted muscular action.

Mastication.

Cheek and lip pressure.

Atmospheric pressure.

The etiologic factors above mentioned are all I have been able to gather in the literature of the two subjects at my command, and it will be seen that the majority of factors are common to the two conditions.

A comparison of the tables tends to strengthen the belief that each writer has been justified in his deductions. For instance, in any particular case, some factor was found apparently predominant in the production of the deformity. The author in his eagerness to advance his theory as to the etiology has not given due weight to the other factors which assisted in bringing about the deformity.

Some authors state positively that certain of the factors mentioned are not causative, while others are equally positive that they are.

There is not a shadow of a doubt that the health of the individual is placed in jeopardy by mouth breathing; and it is the consensus of opinion, both rhinologic and orthodontal, that mouth breathing, whatever its cause, must be relieved; also that nasal occlusion (whether it

be due to stenosis of the nasal passages or to pharyngeal adenoids) and the teeth and jaw irregularities are as a rule associated to a greater or less degree. However, the etiology, be it what it may, is of comparatively slight importance. The improvement of the condition of the unfortunate individual is the consideration which demands our attention.

TREATMENT.

An unaccountable feature to me in reviewing the literature on septal deflection is the fact that while rhinologists practically as a whole acknowledge the important part which irregularities of the upper maxilla play in the production of septal deformities, they do not apply that knowledge in the treatment of the condition.

Nowhere can I find under the head of treatment any suggestion for the correction of these deformities. It is barely possible that the rhinologists are so taken up with the results obtained by submucous resection (which, it must be conceded, are good), and so confined to their own specialty, as to forget or fail to recognize the importance of contiguous structures.

The fact is, rhinologists as a body do not as yet appreciate the benefits that may be obtained by widening the superior maxilla in nasal obstruction of any nature (even in pharyngeal adenoids) except obstruction due to malignant growths.

Those practicing orthodontia have to a large degree had this fact forced on them in the past apparently by accident, in adjusting dental and jaw irregularities, and it is only the more progressive who have applied or attempted to apply this knowledge with its resulting benefits to their patients.

Dr. D. B. Kyle rightly says that of the many operations for the correction of septal deflection, each was suggested by its author for a particular variety of deflection, and that much discussion and confusion has been caused by the fact that other operators adopt the methods for varieties of deflection to which they are not adapted. The results being unsatisfactory, the method is condemned.

The variety of septal deflections is infinite, and although some authors attempt a classification, no two are alike. From my understanding the same may be said of dental and jaw irregularities. As a result no definite rules can be laid down as to treatment, each case being a law unto itself.

OBJECTS TO BE OBTAINED IN TREATMENT.

The objects to be obtained in treatment of septal deflection are: First, to establish free nasal breathing; second, to restore the septum to the median line with its surfaces as smooth and even as possible; third, to equalize the space on either side of the septum; fourth, to leave the septum with mucous covering as little injured as possible so that its function may not be impaired.

The first thought that comes to one on looking into a nose having a septum with a marked deflection is that more space is needed, and that something must be removed to obtain this. There is no doubt that there is seemingly superfluous tissue in the largest percentage of these cases when compared to the nasal space in which they are found, but the fact that the nasal space is much smaller than it should be is, as a rule, not taken into consideration.

The removal of tissue, such as turbinates, thickened portions of the septum, or spurs in overcrowded nares, is beneficial. In many instances, however, the removal of too much tissue, which is a fault with many operators, is a real source of danger. To my mind it is far better to attempt to increase the size of the nasal fossæ first, and then proceed to the removal of any superfluous tissue should it be found necessary.

This can be accomplished, so far as my knowledge goes, only by widening the arch of the superior maxilla. This procedure to be effective in enlarging the base of the nares, *must be essentially different from the ordinary expansion for the regulation of the teeth in abnormal position.*

Expansion of the maxilla relieves the pressure on the septum, which tends to straighten itself; the breathing space is enlarged and allows the nose to functionate. There is an actual increase in the width of the base of the nose. The volume of air inhaled being increased, the static congestion disappears with a reduction in the size of the turbinate bones, resulting in a further increase in nasal space. Adenoids rarely fail to become rapidly smaller after nasal breathing is established.

This state of affairs should be allowed to continue until no further increase in nasal space is noticed and the turbinate bones have decreased in size as much as possible before deciding if any tissue should be removed.

Several dentists have attempted to widen the upper maxilla of their patients by a slow torturing process of expansion, which exhausted the patience of the individual long before the desired results were accomplished.

Dr. G. V. I. Brown accomplished the results in the case which first started my investigations along this line. He is the only one with whom I so far have come in contact who succeeds in obtaining the results desired.

How he does it he must explain to you. We differ as to how the result is brought about to a certain extent, and I am afraid that I must concede that his theory is correct; that is, the result is produced entirely by separation of the median palatal suture, which is manifested by the increased space between the middle incisors.

My theory is that in addition to this separation there is a real lowering of the vault, the result of an outward tilting of the alveoli. I do not see how the septum can be so materially straightened, which is the case in practically every instance, unless the vault is lowered and pulls the septum down. As a result the patient is, as a rule, so well satisfied with the increased breathing space and relief from the disagreeable symptoms produced by the stenosis and congestion that he considers operative procedure in the nose unnecessary. This, however, is not always so. In some instances removal of a portion of the turbinate bones or a spur or exostosis or a submucous resection of a part of the cartilage is required.

TIME TO OPERATE.

The age at which deflection of the nasal septum begins to make itself manifest is somewhat disputed.

Doctor Talbot says that many septums are deformed before the sixth year. The earliest age I have found given by rhinologists is five years and nine months, observed by Bishop.

Lack says:

"Apparently deviations of the septum may be congenital, for Anton saw nine instances in fifty-nine infantile skulls, and other less important similar statistics have been published. Zuckerhandl, however, states that septal deviations very rarely occur before the age of seven, and Doctor Keith informs me that he has never seen a congenital deflection. As a matter of clinical experience, all forms of septal irregularities are very rare in children. I never have seen a

true deviation under the age of six, but have in a few instances observed small projections or spurs in younger patients."

Freer gives eight years as the age of the youngest patient on whom he has operated.

Doctor Bogue says:

"If irregularities are found among deciduous teeth, irregularities of the same nature, but still more pronounced, may always be expected in the permanent teeth which are to follow these deciduous teeth. If no perceptible irregularities of the deciduous teeth exist, and at five and one-half or six years no separation of the deciduous incisors has taken place, we are certain that development of the arch of permanent teeth has been arrested and that there will be irregularity of the front teeth, because the permanent teeth, being larger than the deciduous teeth, need a larger arch in which to erupt.

"It is not wise to attempt to place on any child the burden of overcoming unaided the conditions just described, of insufficient air spaces, accompanied by insufficient room for dental development. Teeth, if seriously irregular, can never regulate themselves, and noses insufficiently developed always lead to worse evils as the time goes by.

"On the proper formation of the palatine arch and the various sinuses depends the resonance and carrying qualities of the voice, and on the accurate formation of the dental arches and the correct occlusion of the teeth depend the power of clear and distinct enunciation and the power of thorough mastication which means insalivation. This is the first step in the digestive process so important to the health and strength of the individual. It has only recently become known that impending defects of the kind here mentioned may be discovered in early childhood and may be remedied while the bones are in a formative state and the teeth are in process of development.

"Slight wire arches a little wider in circumference than the dental arches of the child should be placed on the undeveloped arches of deciduous teeth, and be allowed to expand until the proper size of the arch or even a trifle larger than is necessary for the normal development of the permanent teeth is procured. This operation should be entirely painless and should occupy but a few weeks in its accomplishment, but when completed it will be found that the nasal stenosis has at the same time been largely or altogether corrected."

The results of Ziem's experiments in producing nasal stenosis in young animals by occluding one-half of the nose artificially are worthy

of note in this connection. These results are that the two sides of the nose and adjacent bone tissue develop symmetrically, that the obstructed half remains undeveloped, and that this arrest of development extends to all the adjacent tissue on that side of the face.

Doctor Kyle, referring to mouth breathing and its resultant developmental deformities, says that unless perfect nasal breathing is established early in life, that is, before the fifth or sixth year or not later than the seventh, the bony cartilaginous framework becomes so firm that little can be done toward increasing the nasal space for breathing and the individual will of necessity be a mouth-breather for life.

Again taking the rhinologic standpoint, this statement seems reasonable, but from an orthodontal viewpoint the situation changes.

Gray states:

"The superior maxilla commences to ossify at a very early period, but the sutures between the palate processes persist until middle life."

This being the case, the jaw may be widened at any time before this. The necessary nasal space should be obtained first and then, if necessary, remove superfluous nasal tissue after the effect of partially restored nasal breathing has been observed for a time.

Doctor Faught, in the summary of his paper last year, brought up several points, some of which clinical experience seems to contradict.

1. "The result of ordinary expansion operations on nasal conditions is more dependent on vital tissue in the nasal region than mere mechanical movement." This is true in part. The "ordinary expansion operations" are as a rule not sufficient to produce the desired effect of increasing the nasal space sufficiently, but they do tend to stimulate the nose to properly functionate.

2. "Operations designed mechanically to increase the respiratory capacity of the nasal passage are practically valueless, unless the intermaxillary suture is separated, as shown by increase of space between the central incisors." This is true, and is the very reason why so many dentists fail to obtain relief when operating for nasal stenosis.

3. "It is impossible to relieve stenosis due to adenoids or septal irregularities by expansion methods." Clinical results entirely disprove this assertion.

4. "Adenoids and deviations of the septum should receive the usual treatment at the hands of the rhinologist prior to the correction

of dental irregularity." This I believe incorrect, as stated earlier in the paper, with this exception: In cases of marked pharyngeal adenoids their removal is demanded previous to any attempt at regulation of dental deformities as this will aid in development of the face.

Doctor Bryant says:

"The course of treatment to pursue if nasal breathing can be maintained is to straighten the teeth first and operate on the nose later if necessary. If nasal breathing cannot be maintained, operate on the air passage sufficiently to allow nasal breathing before regulating the teeth. Then regulate the teeth, and, last of all, do the final work of the nose if any further work is required."

WHY SEPTAL OPERATIONS ARE NOT EFFECTIVE.

The great reason why septal deformities tend to return is, in the first place, the difficulty in the removal of sufficient tissue to prevent backward pressure on the septum and a consequent return of the deflection. If too little tissue is removed the result is unsatisfactory. In the second place, the main etiologic factor—that is, some dental or jaw irregularity—is overlooked and goes uncorrected. The main factor in the production of the deformity remains with a lessened resistance in the deformed part with a consequent tendency to return. This was much more frequently the case in the days before submucous resection, but to a certain extent still holds good.

Thus the fact is being forced on us that the conditions, normal or abnormal, of one portion of the head and face are dependent on the condition of other portions.—*American Medical Journal.*

HOW WOULD YOU RESTORE A LOST UPPER LATERAL IF THE CENTRAL CUSPID HAVE VITAL PULPS AND NO DECAY?

How best to supply a lateral incisor between a perfectly sound cupid and central incisor is indeed a problem in many cases not easily solved. Three distinct classes of procedure may be resorted to, that is, fixed bridgework, some form of removable appliance, or implantation. The existing conditions will in a measure govern the selection of the method to be employed, but in almost any event the treatment of these cases calls for radical measures if the highest degree of efficiency, permanence, and cosmetic effect is obtained.

Under the first class of procedure—fixed bridgework—there are

a number of methods in vogue, and each has its advantages and disadvantages. The supplying of one tooth between two sound teeth in any part of the mouth by means of the fixed bridge necessitates the mutilation of the adjacent teeth for anchorage and the conscientious operator who has the best interests of his patient at heart will think twice before he will sacrifice two good sound teeth in supplying one—and in my opinion the crowning in any form and in any part of the mouth of two such teeth for this purpose is wholly unwarranted and cannot be too severely condemned.

The partial plate may be resorted to, and if properly constructed and cared for as it should by the wearer, fairly good results may be obtained, but the dangers of injury to the lingual surfaces of the other teeth and gums incident to the wearing of any form of partial plate must not be lost sight of.

The implantation method has been advocated from time to time, and while its employment may be accompanied with very gratifying results in many cases, there is, on the other hand, such a large per cent of failures that to recommend it as a system of practice would be the rankest folly. My answer to the question is this: Let every man supply this missing tooth in the way that he feels that he can do it best, but personally I have preference for one of three methods of fixed bridgework, the choice of which is determined by conditions noted when making the examination.

The methods referred to are the staple semi-jacket or Carmichael, the lingual plate with pins or the cast gold inlay with dowel into pulp canal. The three methods mentioned are well known to all of you, but since so much depends upon the judicious selection and application of the one to be employed, a failure to call attention to the essentials of each, and to differentiate between the cases best suited to each method would be equal to a failure to answer the question.

The semi-jacket is admirably suited to cuspid abutments and by the casting method is comparatively simple in construction, and when properly made is one of the strongest and in every way is one of the most satisfactory abutments that can be made. As stated, the cuspid is most favorable for this form of abutment, and in many instances will serve alone as a means of support for a lateral incisor dummy. Where the bite is not too close and the patient will submit to the removal of a portion of lingual surface of enamel, and drilling two or three small pin holes into the dentine between the pulp and the

periphery of the tooth, a very satisfactory piece of work can be done in this way. This method will necessitate anchoring to both central and cuspid and requires a high degree of skill in its successful application. While the cast gold inlay with dowel involves the removal of the pulp, it is nevertheless more easily done in most cases than either of the other methods, and, owing to its great strength and universal application, may be adopted as a system of practice with perfect safety. I would emphasize the importance of pins of some sort in connection with all inlay abutments. The anchorage of most inlays without pins is insufficient to resist the torsion exerted by the average bridge.

In conclusion, I want to enter a strong protest against the very common practice of making a slipper crown for the cuspid and allowing a spur to rest on the lingual surface of the central incisor, or vice versa. The lingual spur invariably results in decay of the tooth upon which it rests and the slipper crown is an abomination that should not be tolerated for a minute.—*F. E. Roach, The Dental Review.*

THE DELUSION OF GUM CHEWING.

BY MARK G. M'ELHINNEY.

(Written for the Eastern Ontario Dental Association, at Morrisburg, July, 1909.)

Mr. President and Gentlemen—The practice of gum-chewing is one which frequently comes under the notice of the dental practitioner, both on account of its widespread indulgence and the questions which are often asked regarding it.

It is important that we should be able to give intelligent answers to the questions, and take some definite stand regarding the probable results.

From its aesthetic standpoint, gum-chewing is certainly to be deplored. The continual movement of the jaw detracts most surely from the attractiveness of the otherwise most pleasing face, and at once stamps the individual as vulgar.

It has been noted by careful observers that this continual exercise of the muscles of mastication tends to lower the tone of the expression, and produce in time an appearance of vacuity in the countenance.

Its effect upon the mentality, though perhaps slight, is similar to that caused by thumb-sucking and other idle and useless habits of the organs of prehension and mastication.

It is well established that unnecessary expenditure of nerve-force, however slight, is a continual draft on the nerve-centres, and in time will rob the individual of much nervous energy.

Persons suffering from waste of nerve-energy are unable to assume a condition of repose, and suffer accordingly from any sudden shock. Nervousness is a condition which continually aggravates itself by indulgence, and indicates a lack of control on the part of the individual. Purposeless action inhibits control, and prevents real accomplishment of useful work.

The advertisers of chewing-gum dilate largely upon its supposed benefits, and too many professional men have been led, unthinkingly, to advise the practice.

Let us examine the matter from the physiological standpoint. The secreting glands of the body are provided for certain definite purposes. They secrete certain fluids which are required in the bodily economy to perform certain functions.

They are called into action by the stimuli of the conditions for which they are required.

In the state of health each gland supplies the necessary amount of the required fluid, with a slight excess to meet emergencies.

When the stimulus is withdrawn the secretion ceases and the gland rests until more is needed. If a gland be drawn on in excess of its physiological requirement, the tonicity of that gland is impaired and it will continue to secrete when not required.

This is the condition known as catarrh, and denotes a failure of inhibitory action.

The presence of food is the stimulus necessary to produce a flow of saliva. The saliva, amongst other functions, is the stimulus necessary to produce a flow of gastric juice, and so on throughout the process of digestion, each fluid, in turn, acts as a stimulus for the production of that next in order. Such is the normal arrangement.

In gum-chewing, saliva is made to flow without the proper object in view; passing to the stomach there is caused an unnecessary flow of gastric juice, which in turn excites action in the succeeding areas. Throughout all this glands are excited and fluids are produced which are not at the time necessary.

This waste prevents a proper supply when required and lessens the active principles in the secretions, thereby resulting in impaired digestion.

It is logically evident that persistent gum-chewing results in oral catarrh, which in turn causes gastric catarrh and a deterioration in the intestinal fluids.

Health is simply a proper balance of the bodily functions, and when this balance is disturbed disease is the certain result.

Had we been intended to keep continually chewing, nature would have provided us with a cud, after the manner of the ruminants, in whom large quantities of fluid are necessary to digest bulky vegetable food. The absence of the cud in man denotes a physiological difference between him and his bovine brothers in the matter of feeding.

Gum-chewing in young women is generally accompanied by a taste for the romantic productions of Bertha M. Clay and Laura Jean Libby, a taste not likely to result in the acquirement of a fine literary sense.

Culture is not at all the exclusive possession of the upper classes; it may be found in all walks of life; but gum-chewing is certainly the outward and visible sign of the lack of it.

The cultured lord or millionaire, seeking for a soul-mate behind the counters of a departmental store, where types of pure and unsophisticated beauty may often be found, would certainly pass over the girl with the busy lower jaw, for such would stamp his choice with undeniable vulgarity.

As dentists, having at heart the best interests of the public, it is evident that we should discourage this unsightly and injurious practice, the only beneficial result of which is found in the pocket of the millionaire gum manufacturer.

While we can have no objection to the honest accumulation of wealth, we do not wish to see it attained at the price of the health and beauty of our Canadian girls.—*Dental Practice.*

DENTISTS AS BUYERS.

If dentists were as good buyers as the most of them are spenders, all would be wealthy. Most of them spend with free hands and happy hearts. But few seem to perceive that behind the glad spending must run a line of good business practice or the spending will some time

suddenly and permanently stop because there is nothing left to spend.

It is usually recognized among merchants that financial success comes very largely from intelligent buying of the supplies or merchandise necessary to the business, both as to the quality of goods bought *and the terms*. The shrewd merchandise buyer fights for an extra 2 per cent or 1 per cent, or even $\frac{1}{2}$ per cent, discount for cash. Offers at which the dentist would turn away in scorn are eagerly sought by him as the corner-stone of money making.

As this article is being written there returns from Europe a member of a New York firm which has made a very rapid success in its line. This member journeyed to Paris to get an extra discount, *not equal in per cent to that quoted regularly to dentists*. He came back delighted because he had secured an additional five per cent on conditions which will compel him to borrow many thousands of dollars to meet the payments. While this member was in Paris, the acting manager borrowed, at one time, \$15,000 with which to discount current bills, which he had not funds to pay.

It is much better business to borrow money with which to take all discounts at their maximum than to allow bills to go to maturity simply because one has not the money in hand to pay them when presented. The firm mentioned above has large and expensive show-rooms on Fifth avenue in New York City. It is expected that the profits from discounts this year will pay the rent of these rooms.

Numberless incidents of this sort might be reproduced as the ordinary practice of the business world. Shrewd buying and prompt payments lay at the root of every mercantile success. Good buyers watch the pennies and the dollars watch themselves.

In some cases this intelligent form of buying has been adopted among dentists. But extensive investigation shows that it is only in rare cases. Most dentists are very poor buyers because they are very poor payers. They contract bills readily, but rarely provide ready funds for prompt payment. The discounts quoted them for prompt payment would be regarded by any shrewd merchant as very large. The merchant would immediately borrow of his bank the money to pay the bill and secure such discount; and of two merchants dealing side by side, the one who took such discounts could put the one who did not out of business. But because the amount involved is not large, the dentist thinks it is not worth while to struggle for the funds and lets the bill run to maturity and perhaps longer.

Let us take some actual figures, that we may get at definite values. Reports from various sections of the country indicate that the average monthly purchases by dentists, exclusive of precious metals, amount to about \$20. These figures were arrived at as follows: the managers of a number of depots each averaged twenty-five accounts, purposely excluding large accounts, and sent their averages to the writer of this article. The averages sent in from different sections of the country were then averaged and the final sum was as above. This figure then may be taken as representative.

Is it worth while for a dentist buying \$20 per month to discount his bills? Isn't it more trouble than it is worth? Let us see.

Suppose the dentist puts that \$20 out at interest. His annual return from any safe investment will not exceed 6 per cent, or \$1.20. But let him use it to discount his monthly dental bill and he will get 40 cents discount the first month. During the month he will sell to patients the materials he purchased with the \$20, and should so conduct his collections that he will have the \$20 again in hand plus his profits when the materials are used. He discounts that month's bill and gets 40 cents more. At the end of the year that \$20 has earned \$4.80, or 24 per cent on the capital. This is four times the amount of interest received from any safe investment and six times the amount a bank pays.

Some dentists figure that they have more than \$20 invested because they pay twelve bills, but the accepted figuring among bankers and other financiers is that \$20 is the total investment, because one \$20 bill can be made to carry on the business. That is, \$20 pays for the month's purchases. The sale of these purchases during the month produces again the \$20 necessary to pay for a new supply and the sale of his services produces the dentist's profits.

The trouble is that dentists too often scorn so humble a sum as this \$4.80 gotten in installments of 40 cents each. It is just this scorn of small amounts and hatred of the trouble necessary to get them that renders their business conduct so unprofitable. Forty cents pays only for small things, an extra plunger or something like that. But a practice buying only this much is a small business, and small leaks may readily drain away the entire capital.

Furthermore, paying promptly requires that the dentist collect his bills promptly.

And in the failure to do this lays the secret of the whole trou-

ble. Our professional predecessors were usually poor collectors, and we are their true descendants. From lack of business sense or of the nerve to put it into practice, we are mostly wretched collectors. We labor faithfully, we use up the supplies we purchase, but when it comes to claiming prompt payment as our right we lose our nerve and too often let the patient pay when he will. Of course it is then hard for us to pay promptly. And thus we are ground between the upper millstone of those who owe us and the lower millstone of those whom we owe. A superficial examination of our assets shows that most of us are ground exceedingly fine. And the fault is ours—ours—ours.

The discount quoted to the dentist for prompt payment at the end of the month is the smallest of several quoted to him. The others, when figured out, make possible such savings as are the wonder of all merchants. And they look with little less than scorn on the man who neglects them. They think him a very poor business man indeed; in their eyes he deserves to fail.

To the dentist who buys \$25 worth of supplies (other than precious metals) at one time, for cash, dental depots quote 5 per cent discount. The dentist we are considering buys \$240 worth of supplies of such a year. If an extra discount can be obtained by buying this amount in purchases of \$25 instead of \$20, business sense would indicate that form of buying. Thus he would buy the \$25 worth nine and three-fifths times during twelve months, with a saving of \$1.25 each time or a total saving of \$12 on an investment of \$25, because, as we have seen, \$25 is all that he has invested. This is a total annual profit of 48 per cent on the capital involved. Surely the man who neglects this is little less than financially asleep. But great as this is, it is not all. For with \$25 of purchasing capital, he may take advantage of quantity rates on certain staple lines of supplies. A certain widely used line of amalgam is quoted at \$2.50 per single ounce, 5 ounces for \$10. This means that if Dr. A buys 5 ounces at a time on a \$25 purchase and discounts the bill, he pays \$1.90 per ounce net, while Dr. B, who buys an ounce at a time and lets the bill run, pays \$2.50.

Dr. A thus saves 60 cents an ounce, or nearly 32 per cent of the cost of his amalgam. The figures for several other lines of supplies in constant use show nearly equal returns. In other words, any dentist who can command \$25 and so conduct his collections as

to have it back when the supplies are used up can make eight times as much as the bank or any other safe investment can hope to pay him.

Joined with his high rate of savings is linked perfect security. He has his money or his supplies always in his own hand. Better than any mines, oil, rubber or other speculative investments are the returns that lay within his easy reach simply by paying his supply bills and taking his discounts.

It is hardly necessary to go on to figure out the savings resulting from the deposit of \$90 with the dealer and the securing, at the very start, of 11 1-11 per cent.

For our average buyer this nets nearly 33 per cent without taking advantage of any quantity rates. Many of the large buyers make 50 per cent per annum on these terms. No wonder they prosper and that they often quote fees that are the wonder and despair of competitors.

How simple is the prescription for such profits. It has only three elements.

First. Get your money for what you do.

Second. Save or borrow enough money to discount your bills.

Third. Do not despise small savings.—*Digest.*

THE RIGHT OF A DENTIST TO COMPENSATION.

J. HOWARD RHOADES.

There is, at the present time, an undoubted right, in physicians, surgeons and dentists, to recover compensation for services rendered, although by the common law all the fees of professional men, including lawyers, were honorary merely and not to be recovered by any mode of compulsion or suit.

This right of compensation may arise in either one of two ways, by either a direct agreement to perform certain services for a fixed price, which constitutes an *express* contract, or by a person placing himself in the hands of a dentist for professional service, in which case an *implied* contract arises.

As has been said, in an adjudicated case, "In the absence of a special contract, a person who places himself under the care of a physician, and of course the same rule applies to dentists, will be

required to pay for the treatment the compensation shown by the evidence to be that ordinarily received by physicians under similar circumstances."

In the event of a patient and dentist coming to an express agreement for certain specified work to be done for a certain specified sum of money, the dentist can, in no event, recover more than the contract price, even though in performing the work more time and labor are expended than were anticipated by the dentist at the time he entered into the contract with his patient. The terms are fixed and cannot afterward be changed, except by a new express contract between the parties;—whereas in the case of work done under an implied contract the dentist may recover a fee based upon a "*quantum meruit*," that is, he may recover such sum as he is able to prove would be a reasonable charge for the work which he has done. When a patient accepts the services of a dentist, he enters into an implied contract, in which it is agreed, on the one hand, that the dentist will render certain services suitable to his undertaking; and on the other hand, that the person who accepts the services will pay an adequate reward; fixed by the party of the first part, for the services rendered. If, in the case of an implied contract, the patient declines to pay, on the ground that the charge made is excessive, the dentist, in order to recover at law, must prove that the charge made is reasonable, and no more than his services are worth.

To sustain the charge, it is not sufficient for him to give his own testimony as to the reasonableness of the charge. He testifies to the work which he has performed and to the charge which he has made, and then he is obliged to call upon other members of his profession to testify that the charge made is a reasonable one and that they would have made the same charge for the same work. The jury, before whom the case is tried, is the sole judge, under the instructions of the court, as to the reasonableness of the charge.

The charges of professional men vary greatly, depending upon many circumstances, such as their reputation and experience, and the locality in which they practice their profession. An eminent practitioner, with an established reputation and longer experience, can reasonably demand a larger fee than a less experienced practitioner for the same service, because it is presumed that the patient employed the more eminent practitioner with a knowledge of the circumstance, and was willing to pay a higher price for the sake of having the

advantage of the experience, rather than entrust the work to be done by a comparative novice.

The legal presumption is, that agreements and stipulations, made between the parties, such as fair and honest men ought to have made under like circumstances. The law presumes that the patient will pay the usual and ordinary charge for such services as are rendered, and it imposes upon both parties the duty of fulfilling the obligations incident to the contract. A contract between a dentist and his patient will be declared void, if fraud, on the part of either, can be shown.

It is a principle of the general law of contracts, that fraud on the part of either of the contracting parties renders a contract, induced thereby, voidable at the option of the party misled thereby. In order that such a contract may be avoided by the innocent party, he must disavow it promptly, or, as the law says, he must not be guilty of *laches*. Immediately upon discovering the fraud he must declare his intention to cancel the contract or to abide by it.

The question of the right of a dentist to charge for time, not actually spent in operating upon a patient, yet set aside for him, by appointment, at his request, is a mooted one. The weight of authority is in favor of allowing such a charge to be made. The courts take the view that the acceptance of an appointment by a patient for a fixed time, with a dentist, raised an implied contract that the patient will pay for such time, if he fails to keep his appointment. No length of time being specified in the making of the appointment, it is usual to charge for an hour. This rule is a seasonable one, because a dentist necessarily relies upon his professional time for his support, and by a failure of a patient to keep an accepted appointment, the dentist is put to a pecuniary loss, by reason of the time wasted, if he is unable to fill it by work done for another patient. Of course it is only the legal aspect of the case we are considering. In some cases it might not be judicious to stand upon such legal right at the risk of losing a patient. It might be better to bear the small loss involved under such circumstances for the sake of retaining the patient.

There is a rule of law requiring a husband to furnish and pay for necessaries for his wife and children and the same rule applies as between a guardian and his ward. Under this rule the services of a dentist are looked upon as necessaries. When a married woman calls upon a dentist, with her children, and he professionally treats her and the children, she acts as the agent for her husband, and he

is liable to pay for the services rendered. If a minor calls upon a dentist for professional services, it is wise for the dentist to communicate with the parent or guardian and contract with them or obtain their authority for the work, because if by them the services of a competent dentist are offered to the minor he cannot at a mere whim or fancy go to another dentist and throw the liability to pay for his work upon the parent or guardian.

Where a dentist sues to recover compensation for services rendered the patient may set up as a defense that the dentist did not use competent skill in the performance of the service, but his right to compensation does not depend upon whether or not he has successfully performed the work so as to effect a cure. It only depends upon the question of whether or not he has used due care and diligence. The success of a suit by a dentist to recover compensation will often depend upon the manner in which he has kept his accounts. He may be required in some cases to offer his books in evidence and it is very important that he should have for this purpose what is known as a book of original entries. This is, as the name implies, a book which contains the first or original entry or charge made against a patient upon a contract either express or implied, concerning merchandise sold, work and labor due or services rendered. The entries should be made upon the same day that the services are rendered, though sometimes a little more time is allowed. The account should be charged directly to the person who is to pay it, and should show dates, items and prices charged. The charges should never, in the books, be lumped under a heading of "professional services," though the bill rendered the patient may be so stated. If the patient decline to pay and it becomes necessary to prove the claim by the production of books in court, they must show an itemized account of what the "professional services" consisted, and should be as specific as possible. There should not be one charge for two or more fillings, or for several treatments, but they should be distinctly itemized. Failure to so keep books may result in their being excluded altogether as evidence, and even if they should be admitted, they are unsatisfactory in proving the services charged for.

In the case of a patient's death, occurring while he is indebted to his dentist, the law requires that a claim for services rendered to the decedent in his lifetime, shall be presented within one year from the date of his death to the executor or administrator of his estate,

who is bound to give notice of his appointment. The next step to be taken in the collection of a claim in such a case, upon notification of the date set for the audit of the account of the executors or administrators by the Orphans' Court, unless the estate is solvent, and the account has been admitted to be correct, is to attend such audit prepared to prove your claim.

In proving claims for services in the case of death of the patient, properly kept books are of incalculable importance, as in most of the states a claimant is not permitted to testify against a person who is dead, and the claim must be proved by the production of books and papers or by the proof of the admissions of the decedent made in his lifetime to some person other than the claimant. It is not absolutely necessary that the entries in the books which are produced should be such as are generally understood; if they are intelligible to other dentists and are supported by evidence of their meaning. It is quite customary for professional men to use books in which certain signs and symbols are used and while this method of keeping books may be a great convenience and time saver, yet such books cannot be considered as books of original entry and it is well to avoid the use of such method of bookkeeping.

Books of original entry constitute evidence made by the party himself who is seeking to recover upon entries found therein, and as frequently they cannot be tested by other proof, they are to be received in a guarded manner and there is all the more reason for care and accuracy in making the entries.—*The Garretsonian.*

MISCELLANEOUS

Grease Remover—Ether, 1 part; amyl acetate, 1 part; benzine, 4 parts. As this compound is very inflammable, it should be used cautiously near an open fire or flame.—*Merck's Reporter*, January, 1909.

Canker Sores—Local treatment of the herpetic ulcers of the mouth is generally curative. If they are touched with silver nitrate, they respond quickly. If the ulcer is cleansed with peroxide of hydrogen, then dried, and a 20 per cent solution of zinc chloride applied, a cure usually follows one application.—*Record*.

Non-absorbent Cotton—Before commencing to operate, prepare a few pledges of non-absorbent cotton, and have them in readiness. Dry the interior of the tooth and operate until the rising tide of saliva threatens, or you wish to prepare the medicament or mix your filling material; then insert one of the non-absorbent pledges firmly in the cavity, and even though the tooth may be submerged, the interior of the cavity will remain dry until you remove the cotton and enter on another stage of the operation.—Dr. E. C. Durgee, *Dental Scrap Book*.

Plastic Gold—The “plastic golds” most used are “Kenton Williams,” “Watts’ Crystal” and “Moss Fibre.”

Kenton Williams gold should be thoroughly annealed on a mica tray. The filling is very easy to start with this gold, and can be made in much less time than with any other. I always fill the base and larger portion of the cavity with it and finish with Watts’ crystal, which requires but little annealing and gives a much better finish. These golds that are broken up chemically are divided into smaller particles than the foil gold, therefore I think one can get a better condensed and a more homogenous filling.—C. G. Morsheimer, *D. D. S., Register*.

Forming Cavity Margins for Cast Inlays—Small cone-shaped carborundum points, used in an angular handpiece, are an admirable appliance for forming cavity margins for cast inlays. They are used by holding them in the cavity in such a position that the mandril

represents exactly the line of direction in which the pattern must draw. Then, without changing its axis, the revolving stone is moved around inside the cavity, until the latter has the same taper that the stone has. A chisel is not a suitable instrument for finishing inlay cavity margins. It is too apt to follow the lines of least resistance, and thus produce a margin that has little irregularities in it. An inlay is hard to make fit properly into those little irregularities and never looks right. The best marginal finish may be gotten by the use of revolving stones.—Dr. J. G. Lane, *Dental Digest*, May 1909.

Restoration for Abraded Anterior Teeth—Instead of cutting away the proximal portions of the anterior teeth to secure additional anchorage over what could be obtained by deepening the incisal end, I groove the lingual surface extending gingivally to the lingual lobe, the depth being slightly more than the enamel and the width, such as to leave a sufficient amount of tooth structure to retain strength. A pin or post of gold or platinum may be employed for anchorage dentin under the lingual lobe to the depth of about one millimeter. A pin or post of gold or platinum may be employed for anchorage in the pit at the base of the lingual portion of the cavity or the linguo-gingival pit, though I found no difficulty in forcing the wax into position and cast the entire inlay.

The advantages claimed for this method are that of strength, less irritation of live pulps, preservation of tooth structure and sightliness.

No trouble is experienced in masticating any class of food material, and no shock from thermal change. The bite is open about three millimeters.—W. B. Tym, Charleston, Ill.

Relief of Irritated Membranes—After the insertion of an artificial denture, too much care cannot be taken in instructing the patient that if there is any soreness, mastication is very difficult, if not impossible, and that they must at once apply for relief. This is especially true when lower plates are inserted.

The patient should be told to return with the plate in the mouth and not in the pocket. It should remain long enough in the mouth to show the irritated spot. While this is clearly seen by the dentist, it is not always easy to locate it on the plate. If the base is rubber, place a little moist whiting on the irritated surface; or if it is made of metal, use rouge. Place the plate in the mouth and upon its removal the exact spot is seen.

Often after a lower plate has been worn a year or more the patient complains of soreness at the extreme end of the plate. Instead of filing, or changing the plate, apply the articulating paper, and it will be found the trouble arises from settling of the process across the anterior margin of the jaw where teeth were more recently extracted, leaving too much pressure at the heel. Grind the molars as indicated by the articulating paper. The English thick articulating paper is preferable.—L. P. Haskell, Chicago.

FLETCHERISM AND DENTISTRY.

The mention of "Fletcherism" reminds us that here is a subject which deserves more than passing notice. There have been so many food fads, originated by foolish persons, which have had no other influence except in the making of "cranks," that when "Fletcherism" is mentioned it frequently calls forth a smile or a remark of levity. But the ideas of Fletcher are so simple and the following of them is so essential to health, that we, as dentists, should familiarize ourselves with them and teach them to our patients. Fletcher's ideas are so easy to understand and are so evidently true, that on first hearing them one wonders that they had not been promulgated before.

The chief interest of "Fletcherism" to the dentist lies in the fact that people cannot "Fletcherize" properly without good teeth. "Fletcherism" is simply mechanical and physical care in the taking of food, and does not interfere with our natural desires as to materials. If we chew our food, and enjoy it until all the taste and pleasure are gone, it will then be in a fit state for further digestion and assimilation. We soon acquire a taste for wholesome materials, and learn to abhor that which is unfit for food. Only persons with teeth in a healthy condition are capable of properly masticating and thoroughly enjoying their food. Health, energy, and strength depend, not upon the amount of food taken, but upon that which is digested, assimilated, and appropriated to the use of the body; and to each of these processes thorough forceful mastication is a necessary preliminary.—W. L. Fickes, *Dentists' Magazine*.



MEETINGS

THE OHIO STATE DENTAL BOARD.

The Ohio State Dental Board will hold its regular fall meeting for the examination of applicants for license, on October 19-22, 1909. All applications, with the fee of \$25.00, should be in the hands of the secretary not later than Oct. 9th.

For further information and blank applications address,

F. R. CHAPMAN, Sec'y,
305 Schultz Bldg., Columbus, O.

ILLINOIS STATE BOARD.

The annual meeting of the Illinois State Board of Dental Examiners for the examination of applicants for a license to practice Dentistry in the State of Illinois will be held in Chicago at the Dental Department of the University of Illinois, cor. Honore and Harrison sts., beginning Monday, November 8th, 1909 at 9 a. m. Applicants must possess the following requirements in order to be eligible to take the examination.

The following preliminary qualifications shall be required of candidates to entitle them to examination by this Board for a license to practice dentistry in the State of Illinois: Graduates of a reputable dental or medical school or college, or dental department of a reputable university who enter the school or college as freshmen on or after the school year of 1906-7, must have a minimum preliminary education of not less than graduation from an accredited high school or a certificate from the State Superintendent of Public Instruction, equivalent officer or deputy, acting within his proper or legal jurisdiction, showing that the applicant had an education equal to that obtained in an accredited high school; which certificate shall be accepted in lieu of a high school diploma.

Candidates will be furnished with proper blanks and such other information as is necessary on application to the secretary. All applications must be filed with the secretary five days prior to date of examination. The examination fee is twenty (\$20.00) dollars with an addition fee of five (\$5.00) dollars for a license.

Address all communications to T. A. Broadbent, Secy., 705 Venetian Bldg.

THE G. V. BLACK DENTAL CLUB.

The members of the G. V. Black Dental Club (Inc.) will hold their midwinter clinic in St. Paul, Minn., February 24th and 25th, 1910. For further particulars, address R. B. Wilson, Secretary, 409-10 American National Bank Building, St. Paul, Minn.

Michigan State Board of Dental Examiners.—The next regular meeting of the Michigan State Board of Dental Examiners for the examination of applicants for registration in this state, will be held in the Dental Department of the University of Michigan at Ann Arbor, beginning Monday, November 15th, at 8 a. m. and continuing through the 20th. Applications must be in the hands of the secretary at least 5 days previous to the examination. Application blank and copy of the rules can be had by addressing the secretary, A. B. Robinson, secretary-treasurer, 44 Sheldon Street, Grand Rapids, Mich.

EXECUTIVE COUNCIL N. D. A.

A meeting of the Executive Council of the National Dental Association will be held at the Hotel Hollanden, Cleveland, O., at 10 o'clock A. M., Saturday, November 6, 1909, for the appointment of officers' sections, and the standing committees and the consideration of such other matters as may properly come before it.

Members of the Association having any business to present are requested to attend this meeting.

CHARLES S. BUTLER, Sec. BURTON LEE THORPE, Pres.
Buffalo, Sept. 11.

NORTHERN ILLINOIS DENTAL SOCIETY.

The twenty-second annual meeting of the N. I. D. S. will be held at Elgin, October 27-28, 1909.

Our regular most excellent program is assured. Banquet Wednesday evening, which is free to all members whose dues are paid, is an innovation from which great pleasure is anticipated. Come and bring a new member with you. Mark the date on your appointment book.

F. H. BOWERS, Sec.,
Freeport, Ill.

PERSONAL AND GENERAL

Hanmar-Fisse.—After traveling from St. Louis to St. Charles, Mo., Dr. Oscar Hanmar and Mrs. Johanna Fisse were quietly married, August 19. The marriage is the result of a school boy romance.

Davies-Douglas.—Dr. G. J. Davies, a dentist of New Jersey, N. Y., announces his marriage to Miss Florence Douglas of Franklin, Pa. The marriage took place August 9 at Shawville, Pa.

Dental School Tests Planned.—The proposal to establish an elaborate system of dental inspections in the public schools of Cleveland was formerly taken up at a meeting of the board of education of that city, September 13.

Fined for Illegal Practice.—A dentist of Providence, R. I., has recently been fined for illegal practice. A member of the local police force testified to being a patient of the accused, whose name was not found on the list of the licensed dentists.

Iowa Dentist to Army Corps.—Dr. George D. Graham, formerly of the S. W. I. College of Dentistry and lately practicing in Nashua, Iowa, has passed the examination at Washington, D. C., which entitles him to the dental corps of the United States army.

Dental Clinic for School Children.—What is perhaps the first proposition of its kind in the United States, though not new abroad, is the offer of the Rochester Dental Society to establish a free clinic for the pupils of the public schools in Rochester, N. Y.

Peril to Teeth in Bread Slight.—Dean Oure of the Minnesota State University Dental College is an authority for the statement that there is little or no harm to teeth in bread, despite the present agitation concerning white flour as a cause of the rapid decay of teeth.

\$2500 For Two Teeth.—Following the criminal suit in police court charging assault and battery on which he had Omgust Petriekis fined, Boleshaw Karewa, of Joliet, Ill., has started a suit for \$2500 as damages for two teeth which he lost in a Fourth of July fight.

Home for Dentists.—A resolution adopted by the New Jersey State Dental Association July 21 provides for the establishment of a home for indigent dentists who have been members of the State Association for a period exceeding ten years.

Dentist a Hero.—Jumping from a bed where he was suffering from the effect of being struck by lightning, William Ley, a dentist of Elizabeth, N. J. dived into the lake and brought to the surface the body of his friend, W. W. Harrison, after he had gone down for the third time and almost overcome, as he himself directed the treatment which saved his friend's life.

State Board Appointee.—Dr. Palmer of Madison, Wis., has been appointed by the Governor as member of Wisconsin State Board.

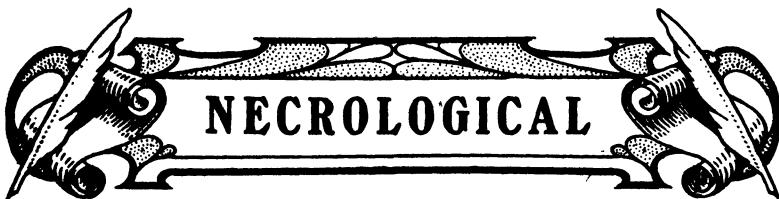
Charles Oehlman Sells Business.—Charles Oehlman, the proprietor of the Quincy dental supply house, is at the present closing a deal in which he has disposed of his business in Quincy, Ill., to a St. Joseph firm. Mr. Oehlman will retain a portion of the stock.

Dentist Disappears.—While attending the Michigan state fair at Grand Rapids, Dr. E. R. Shedden, who had gone there with his wife and family, mysteriously disappeared. His home was at Remus, where he had drawn out his entire bank account, just previous to his disappearance.

Extraction of Teeth Proves Fatal.—An attack of heart disease caused by the shock following the extraction of nineteen teeth, caused the death of Mrs. L. M. Scott of Sacramento, Calif. The dentist had hesitated at extracting all at one sitting, but was told to continue by the woman after he had extracted all in the lower jaw, as she felt strong enough to continue.

Urges Reforms in Army.—That the Dental Department of the army be reformed is urged by Dr. Emmet Craig, who has quit the service, disgusted. Unlike the army physician or surgeons, the dentist has no official rank. There is no provision for increasing the pay of the dentist, which is \$150 per month, nor does he receive a pension if disabled or for long service. The dentist has not even authority over his patients.

Removals.—Drs. D. W. Montgomery from Cynthia, Ind., to Princeton, Ind.—F. E. Woods, from Ottwell, Ind., to Orleans, Ind.—J. F. New, from Carrollton, Miss., to Kansas City, Mo.—T. J. Snagg, from Aurora, Miss., to Carrollton, Miss.—A. B. Rivers, from Decatur, Miss., to Helena, Ark.—M. O. Crawford, from Keota, Iowa, to Mason City, Iowa.—A. Engleman, from Parkersburg, Iowa, to What Cheer, Iowa.—E. Croxen, from Manteno, Ill., to Kankakee, Ill.—W. A. Smith, from St. Louis, Mo., to Shanghai, China.—A. C. Schell, from Neosho, Mo., to Monett, Mo.—F. Reynolds from South Bend, Ind., to Chicago.—E. Kenney, from Chicago to Bear Lake, Mich.—J. McCarty, from Lomira, Wis., to Fond Du Lac, Wis.—Phebus, from Caruthersville, Ark., to Blytheville, Ark.—G. K. Tolford, from Huntsville, Ohio, to Lima, Ohio.—M. R. Gore, from Newton Falls, Ohio, to Cleveland, Ohio.—L. A. Cates, from Marble Rock, Iowa, to Nashua, Iowa.—E. H. Steen, from Fayette City, Pa., to New Castle, Pa.—L. D. Fernolmont, from Lancaster, Pa., to Paterson, N. J.—J. R. Duncan, from La Salle, Ill., to Beaumont, Texas.—P. J. Kane, from Providence, Pa., to Scranton, Pa.—E. R. Hall, from Quincy, Ill., to Ewing, Ill.—W. A. Newton, from Houston, Texas, to Galveston, Texas.—W. J. Carrol, from Indianapolis, Ind., to Gary, Ind.—E. J. Huston, from Chicago to Galva, Ill.



Dr. Geo. W. Colman, a dentist who has practiced in Lansing, Mich., for the past thirty-seven years, died very suddenly at his home, September 17. He graduated from the Ohio College of Dental Surgery, class 1871. He was very prominent in church circles.

Dr. J. P. Huston, a well-known dentist of Galva, Ill., died suddenly September 12. Contrary to the present custom, he studied his profession with a preceptor and located in that city about 1880.

Dr. W. S. Knapp, one of the best known dentists of New Orleans, La., died September 15. The deceased was 43 years old and has resided in that city for the greater part of his life. His father as well as all his brothers are dentists of New Orleans.

Dr. W. A. Leech, a prominent dentist of Newcomerstown, Ohio, died suddenly in his office, September 7, of heart failure. He was formerly a resident of Caldwell, Ohio, where he was well-known.

Dr. E. E. Davis, forty-seven years old, received injuries from which his death resulted when he was struck by an Illinois Central train in Chicago, where he lived, September 10. In addition to his office in Chicago, the doctor had one in Addison from which he was returning when the accident occurred. He was a graduate of the Chicago College of Dental Surgery, class 1887.

Dr. T. B. Robinson, a well-known dentist of Georgetown, Del., was found dead in his office August 30. His death was due to heart failure, as he had been seen just before. He was 69 years old and had held some important state positions before he began to practice.

Dr. B. F. Gibbons, a former practicing dentist of Youngstown, Ohio, died after a somewhat extended illness at his summer home, September 12. In 1887 Dr. Gibbons retired from practicing and has since spent his time on his farm near that city.

Dr. J. T. Houston, a highly-esteemed citizen of Peoria, Ill., died of hemorrhage of the brain, September 8. His death was very sudden. He had practiced in Peoria for thirty years and was a graduate of the Illinois College of Dentistry.

Dr. J. B. Curry, a practicing dentist at Cassville, Wis., died at his parents' home in Mineral Point, Wis., September 15.

Dr. M. O. Randall, a wealthy Pasadena, Calif., dentist, died as the result of an automobile accident, September 7. His father, Judge O. Randall, was hurt in the same accident, but will recover.

Dr. O. O. Lentz, while bathing in the Ohio River, Portsmouth, Ohio, was drowned August 27.

Dr. H. N. Stone, a recent arrival at Newburyport, Mass., is believed to have been murdered in that city, September 16. Dr. Stone was 56 years old and had lived in Ayer of the same state for thirty-six years.

Dr. J. R. Ramsdem, a well-known dentist of Philadelphia, was stricken with heart disease, August 27, and died very suddenly. He was a graduate of the Pennsylvania Dental College, class 1890, and was a civil war veteran.

Dr. Joseph W. Wassall, a prominent dentist in Chicago, was drowned while out with a yachting party on Lake Michigan, a wave striking the craft, sweeping the doctor into the sea. Dr. Wassall was well known and respected by the profession in Chicago and had for many years a large and select practice. He was 51 years old at the time of his death, which occurred September 18. Dr. Wassall was a graduate of the University of Michigan, class of '81.

Free Dental Dispensary.—Since July 1st, Reading, Pa., has had a Free Dental Dispensary. Twenty-five resident members of the Reading Dental Society voluntarily subscribed over \$100 to start the fund and enough was subscribed to equip the rooms. The dispensary expects to receive its patients mainly from the public schools.

Robberies.—Drs. W. E. Maguire, Springfield, Mass., loss \$60.—D. F. Negus, Springfield, Mass., loss \$50.—H. L. Belcher, Syracuse, N. Y., loss \$100.—J. H. Sahler, Syracuse, N. Y., loss \$100.—C. A. Lovgren, Red Wing, Minn., loss \$70.—B. Featherstone, Red Wing, Minn., loss \$40.—F. E. Anderson, Red Wing, Minn., loss \$130.—C. Todd, Sacramento, Cal., loss not given.—J. H. Calder, Cedar Rapids, Iowa, loss \$75.—W. D. Patterson, Cedar Rapids, Iowa, loss \$75.—Hasek, Cedar Rapids, Iowa, loss \$110.—Naibert & Vane, Cedar Rapids, Iowa, loss \$125.—W. W. Bolton, B. H. Pierce, K. L. Eisenhart, J. W. McKennon, H. E. Trostle, H. A. Reese, York, Pa., loss not given.—Dutcher, Detrick, Coyle, Kirkpatrick, Oklahoma City, Okla., loss, total, \$95.—F. E. Smith, Scranton, Pa., loss \$50.—Addison, Fargo, N. D., loss \$25.—A. Halenborg, Fargo, N. D., loss \$60.—E. Wanous, Minneapolis, Minn., loss \$250.—J. Broderick, Minneapolis, Minn., loss \$50.—Billings-Marshall Dental Supply, loss between \$600 and \$1,000.—Parker, loss \$15; N. C. Christensen, loss \$40; W. W. Peebles, loss \$20; J. W. Novak, loss \$30, Omaha, Neb.—Barker, Morris, Ill., loss not given.—J. M. Burke, Buffalo, loss \$400; E. F. Delisle, Houston, Tex., loss \$90.—J. N. Wilson, Galveston, Tex., loss \$10.—S. Bond, Anoka, Minn., loss \$175.

DENTAL PATENTS

Fig. 1.

922,078. Tongue-Depressor. Charles B. Benson, Tippecanoe City, Ohio. Filed Mar. 1, 1909. Serial No. 480,495. 1. A tongue depressor comprising a pair of wire members hingedly secured together, one of said members having a depressed rod receiving portion, a sliding carriage mounted on said last named member and adapted to receive a rod and co-operate with the depression in said member.

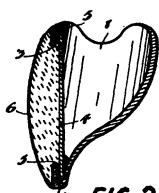
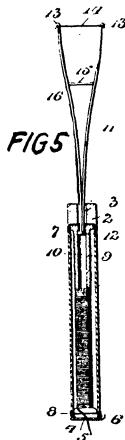
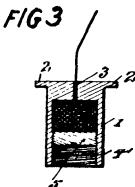
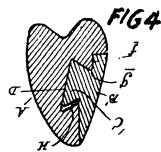
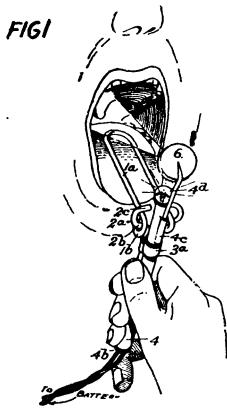


Fig. 2.

921,791. Crown for Teeth. James L. Benson, Winnipeg, Manitoba, Canada. Filed June 13, 1908. Serial No. 438,388. 1. The process of preparing an artificial tooth which consists in forming a crown with a partially open forward face and in forming on the crown a porcelain tooth face which is held to the crown by the porcelain setting with a portion of it overlapping on the inner face of the crown.

Fig. 3.

927,844. Dental Silk Receptacle. Homer Emerson, Milton, Mass. Filed Feb. 28, 1908. Serial No. 418,363. 1. A device of the character set forth for the purpose specified, the same comprising a tubular body closed at one end by means of a disk and having an outer flange at the closed end to form a grip and having an opening in the disk for the passage of thread, the interior of the tubular body being threaded and a plug adapted to make screw thread connection with the interior threaded walls of the body to support a ball or quantity of thread and to expose a threaded portion of the body near the open end, as and for the purpose specified.

Fig. 4.

920,768. Artificial Tooth. Frederick W. MacDonald, Detroit, Mich. Filed Nov. 10, 1906. Serial No. 342,886. 1. In an artificial tooth, a recessed member and a member having an undercut projection for interlocking with said recessed member, and of greater extent than the orifice of said recess, said members being engageable only by a relative angular movement in a plane transverse to their meeting faces.

Fig. 5.

922,824. Dental Floss Holder. Toney A. Tubbs, Treadwell, Alaska. Filed Jan. 6, 1909. Serial No. 470,904. 1. A dental floss holder comprising a hollow tube closed at its ends by caps having central perforations, a floss carrying spool rotatably mounted in the tube between the caps and provided with a central bore, and a pair of spring arms provided with floss engaging hooks at their outer ends and having their inner ends extending through a perforation in one of the caps and into the bore of the spool, whereby the arms may be moved into the bore of the spool when not in use.

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